



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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August 2, 2002

ADDENDUM NO. 1 RFP NO. C-13820 SCIENCE AND ENGINEERING SUPPORT

This **ADDENDUM NO. 1** is issued for the purpose of providing a list of questions and answers received during the inquiry period and the pre-proposal conference conducted on July 30, 2002. This **ADDENDUM NO. 1** is also being issued to inform respondents concerning changes to Part 2, Instructions for Preparing Responses, the Qualifications Checklist and Part 4 Statement of Work which has been modified to include information on how each technical discipline will be used to support District needs. The following attachments delineate specific changes to each. In addition, supplemental information is being provided to inform and assist respondents with the preparation of their proposals.

1. Attachment 1 contains the list of Questions and Answers
2. Attachment 2 contains changes to Part 2, Instructions for Preparing Responses
3. Attachment 3 contains changes to Part 4, Statement of Work
4. Attachment 4 contains Sample Statement of Work No. 10 for Appendix B
5. Attachment 5 contains a matrix delineating the discipline that relates to the Appendix B, Sample Statements of Work.
6. Attachment 6 contains a revised "Qualifications Checklist".
7. Attachment 7 contains the Mileage Chart used by the District to score Location Consideration.

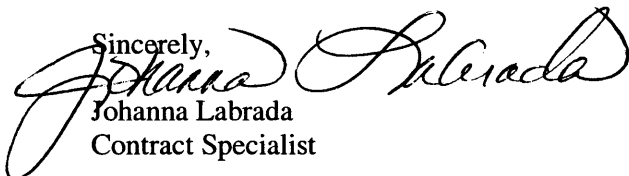
Additionally, this **ADDENDUM NO. 1** is issued to require each respondent to submit **5 copies of the technical proposal for every technical discipline checked on the "Qualifications Checklist".** In addition, each respondent must submit one copy of the proposal marked **"original"**.

**NOTE: THE DEADLINE FOR PROPOSAL SUBMISSION REMAINS
AUGUST 16, 2002 AT 2:30 P.M.**

This **RFP NO. C-13820 ADDENDUM NO. 1** shall be considered as part of the Request for Proposal documents released on July 22, 2002.

Please acknowledge receipt of this **ADDENDUM NO. 1** by signing in the space indicated below and returning a copy with your submission in response to this solicitation. Please direct any questions to the undersigned at (561) 682-2720.

Sincerely,


Johanna Labrada
Contract Specialist

Attachments 1, 2, 3, 4, 5, 6, & 7

ADDENDUM NO. 1 received on _____ by _____
Date Company Name

GOVERNING BOARD

Trudi K. Williams, Chair
Lennart E. Lindahl, Vice-Chair
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Harkley R. Thornton

EXECUTIVE OFFICE

Henry Dean, Executive Director

RFP C-13820
ATTACHMENT 1 TO ADDENDUM NO. 1
QUESTIONS AND ANSWERS

1. **Question:** What is the estimated budgeted amount for this project and what is the term of this project?

Answer: The estimated range is \$4,000,000.00 to \$6,000,000.00. The term of this project is 3 years with an option to renew for 2 additional 1 year periods.

2. **Question:** We understand that with \$4,000,000 to \$6,000,000 for 20 companies over three years, this would equate to about \$60,000 to \$100,000 of revenue per company, per year. What is the volume of work expected as a result of this project.

Answer: The District does not warrant or guarantee that any minimum quantity of Work Orders for any dollar amount will be awarded as result of this RFP. The foregoing funding appropriation represents the entire not-to-exceed budget for all contracts awarded as a result of this RFP.

3. **Question:** Is it possible that the deadline could be extended by two weeks?

Answer: No, at this time the deadline for proposal submission remains August 16, 2002 at 2:30 P.M.

4. **Question:** It appears that the example Statements of Work emphasize the disciplines of hydraulics and hydrology (H&H) and water quality sampling. How do we showcase other disciplines such as hydrogeology, environmental science, toxicology, GIS and remote sensing, and biogeochemistry?

Answer: An additional Sample Statement of Work (Sample #10) has been added to include additional expertise. It is important that respondents realize this project is data products related. For example, a person with a background in engineering (civil, structural, etc.) should have the knowledge to use District methodologies to produce the data products. Please see Attachment 3 for a brief description of the how each technical discipline will be used to support District needs. Additionally, the Attachment 5 matrix is provided to facilitate identification of each discipline as it relates to the Sample Statements of Work.

5. **Question:** It is our understanding that four consultant work plans are required to accompany the references. If one or more disciplines are not covered in these four references, will additional consultant work plans be required? If not, is it sufficient to provide resumes, general qualifications, and project profiles?

Answer: Please refer to Attachment 2 which modifies Part 2.4 C. Technical Proposal and D. Qualifications and Experience of the Instructions for Preparing Responses as well as Attachment 3, paragraphs 5.1 and 5.2. Changes were made specifically to modify the number of work plans, references and resumes required.

6. **Question:** Sample Projects 5 and 6 are essentially identical in terms of considering a project approach. Do you want to exchange one of them for another giving your more diversity?

Answer: No, Sample Projects 5 and 6 are similar but not identical, one deals with an large data compilation and evaluation project, and the other is an actual work order

for ultra-trace mercury monitoring. They capture environmental science, hydrology/engineering, field monitoring and toxicology disciplines.

7. **Question:** On page 6 of the RFP, paragraph 2.3, Insurance, it says that we must meet all of the Exhibit "H" requirements. I was unable to find an Exhibit "H" in the RFP. Does a copy of our corporate insurance certificate (for information purposes only) constitute "evidence"?

Answer: Exhibit "H" immediately follows the Statement of Business Organization form. Unfortunately, the header and footer were cut off during duplication. It is page 135. A copy of your corporate insurance certificate is sufficient evidence if it meets the insurance requirements for this project.

8. **Question:** On page 7 of the RFP, under D. Qualifications and Experience, paragraph 2, curriculum vitae are required to be submitted under this section. On page 13 of the RFP, paragraph 5.2, it says that resumes are also required to be submitted as part of the Sample Work Order response in the Technical Proposal section. Do we need to submit resumes/curriculum vitae twice, or can we refer to the resumes submitted in the Qualifications and Experience section?

Answer: Both sections are asking for the same thing. This information needs only to be submitted once in the Qualifications & Experience section of your proposal.

9. **Question:** On page 7 of the RFP, under C. Item 4 Project management plan and schedule for each deliverable: Since there is no specific deliverable and we do not know the anticipated time frame for any of the actual work orders will it be sufficient for us to provide perhaps 3 sample schedules that would show conceptually how work would progress for the some of the example statements of work? Or do you expect the firms to create a schedule for each of the nine SOWs?

Answer: The respondent should only submit one (1) Project Management Plan which encompasses the entire project approach. This section has been revised for clarity in Attachment 2.

10. **Question:** Do you need the same references, work plans and supplemental information (as requested for the primes) from the MBE subs?

Answer: Yes, please refer to Part 2.4 D. Qualifications and Experience.

11. **Question:** Is there a maximum number of pages for any part of the proposal, particularly the work plans?

Answer: The District will allow up to 10 pages for each work plan submitted.

12. **Question:** If different MBE firms are selected as partners for different disciplines, are multiple MBE Utilization Plans required?

Answer: No, only one MBE Utilization Plan is required which must list all MBE firms you intend to utilize for this project. If multiple MBE firms are utilized, then the percentage of participation for each firm must be shown.

13. **Question:** Should the sub-contract amount (agreed price) for MBE participation be provided?

Answer: No, no prices should be listed anywhere on any part of the proposal in response to this RFP. The percentage of participation is the only information

required. On all MBE forms, disregard reference to dollars and only insert applicable percentages.

14. Question: Will the evaluations be conducted separately per discipline?

Answer: Yes, evaluations will be done based upon Part 3, RFP Evaluation Criteria. We are asking for five (5) copies of each proposal to be submitted for each discipline so that proposals may be organized according to discipline and evaluated by the five committee members accordingly.

15. Question: Where can I obtain a map depicting the locations of the approximately 2000 remote monitoring stations?

Answer: The monitoring site map series can be obtained upon request from the District. Please contact the Contract Specialist for this RFP.

16. Question: Will the consultants selected for this contract be able to be considered as "pre-qualified" and utilized by departments other than the Environmental Monitoring and Assessment Department, such as the CERP/ECP Department?

Answer: At the present time, the intent is to provide services solely in support of the Environmental Monitoring and Assessment (EMA) Department. Please note that some of the EMA Department needs are related to CERP.

17. Question: In the Appendix "A" Job Summary, listed below Employment Guidelines for each job summary, it requires individuals to have a valid state of Florida driver's license. Is this a requirement at the time proposals are submitted.

Answer: A valid Florida driver's license is not required at the time proposals are submitted, however, if the respondent is awarded a contract as result of this RFP then a driver's license must be obtained within 30 days of contract execution.

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the titles, addresses and telephone numbers of each person(s). The letter must declare that the response was prepared without collusion with any other person or entity submitting a response pursuant to this solicitation. An authorized agent of the respondent must sign the transmittal letter indicating the agent's title or authority. **In no case may a response be transferred or assigned by a respondent to a third party following submission of a proposal to the District.**

B. Qualifications Checklist

In order to facilitate District's review and evaluation of each respondent's technical qualifications, the Checklist must be included with each proposal. Respondents must check all applicable disciplines which are being proposed for consideration by the District under this RFP.

C. Technical Proposal

This section of the response should explain the requested Statement of Work as understood by the respondent. This section should also include any assistance, materials, equipment, reports, space, etc. the District must provide to the respondent to complete the "Statement of Work." The respondent should prepare this section of the response in such a manner that the District can incorporate the proposed "Statement of Work" into the final contract with minimal changes. The following details should be included:

1. A statement of the proposed work objective and scope.
2. A list of resources and/or equipment provided by the respondent.
3. Work Plan(s) for each applicable technical expertise (see Appendix B, and Part 4, paragraph 5.2 for further details).
4. Proposed project management plan describing how resources will be managed by your firm on a daily, weekly, monthly, annual basis.

D. Qualifications and Experience

This shall be a separate section and include details as follows:

1. Details on the qualifications of the firm, including a summary of the firm's history, experience, and staffing resources.
2. Details on the qualifications of the individual(s) who will perform the work, including experience in similar work, curriculum vitae, and relevant college, graduate or professional courses for each applicable discipline checked on the Qualifications Checklist. See paragraph 5.1 of Part 4 for further information.
3. A list of at least three (3) current clients and pertinent references (include name, address and telephone number) that the District may contact. For at least two of the references, include a short summary description of the project scope of work (not-to-exceed one page) that were used to accomplish the project. **Note: Use of District staff as references on current projects will not be accepted. This information must be provided for each applicable discipline checked on the Qualifications Checklist.**

4. A list of at least three (3) former client references pertaining to similar past projects including contact name, address and telephone number, summary of each project scope as it relates to this project (one paragraph), and date that each project was completed. For at least two of the references, include a short summary description of the project scope of work (not-to-exceed one page) that were used to accomplish the project. **Note: Use of District staff as references on past projects will not be accepted. This information must be provided for each applicable discipline checked on the Qualifications Checklist.**

5. Indicate the availability of the firm and the individuals proposed to provide the services. Identify the extent and nature of any anticipated outside support. **This information must be provided for each applicable discipline checked on the Qualifications Checklist.**

6. If a joint venture or subcontractor arrangement is involved in the response, the respondent must include a copy of the agreement with the response, and a list of such parties by name, address and telephone number, including supervisory and professional personnel, and a summary of how the work will be apportioned.

7. The same information requested above in items (1) through (6) must be provided for all members of the project team, including each subcontractor/joint venture party.

E. Supplemental Information

This section shall include the following items:

1. Provide a summary of any litigation filed against the respondent in the past three years which is related to the services that respondent provides in the regular course of business. The summary shall state the nature of the litigation, a brief description of the case, the outcome or projected outcome and the monetary amounts involved. **If not submitted, a respondent shall be deemed non-responsive to the solicitation requirements (refer to Part 2, Section 2.1).**

2. Provide Financial Statements for the past two years that have been audited, reviewed or compiled by a third party certified public accountant or federal tax returns that have been filed with the Internal Revenue Service for the past two years. For respondents that have been in business for less than two years, provide the most recent financial statements that have been audited, reviewed or compiled by a third party accountant or federal tax returns that have been filed with the Internal Revenue Service. **If not submitted, a respondent shall be deemed non-responsive to the solicitation requirements (refer to Part 2, Section 2.1).**

Before a technical/qualifications evaluation is conducted, the District shall perform a detailed review of the financial statements or federal tax returns submitted with the respondent's proposal to determine whether or not the respondent is financially stable for successful performance of

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PART 4 STATEMENT OF WORK SCIENCE AND ENGINEERING SUPPORT

The following Part 4 Statement of Work section 4.0, 5.0, 5.1 and 5.2 are hereby replaced in their entirety as set forth below.

4.0 SCOPE OF WORK

Respondents who meet the required standards and qualifications will be deemed “pre qualified” to provide the specified science and/or engineering support services for the District. Services may be required for any one or a combination of the following technical disciplines:

1. Civil Engineering:
 - 1.1 Structural Engineering
 - 1.2 Water Resources Engineering
 - 1.3 Hydrology
2. Environmental Engineering
3. Agricultural Engineering
4. Hydrogeology
5. Biogeochemistry
6. Chemistry
7. Toxicology
8. Environmental Science
9. Technical Writing
10. GIS and Remote Sensing
11. Quality Assurance/Quality Control (Scientific Data Validation)

The primary function of The Environmental Monitoring and Assessment (EMA) Division is to provide scientific and legally defensible environmental data and assessments in a timely, accessible manner. The technical disciplines above are based on the backgrounds of District staff that are currently providing the services being sought in this statement of work. Staff with varied backgrounds are performing a variety of functions in the Environmental Monitoring and Assessment Department that require one or more of these disciplines. Many of these functions are performed using proprietary tools and methodologies. In these cases, training and/or instruction will be provided by staff. Following is a brief description of these functions, previously defined as science and engineering support services, as they relate to this statement of work.

Civil Engineering (Structural, Water Resources or Hydrology): Using instantaneous stage and control information, the instantaneous flow values at these structures are computed using proprietary programs. Engineering support services include the developing and testing of flow equations that are implemented in the FLOW program. Development of these equations involves the use of known hydraulic and fluid mechanics principles as well as hydraulic research in areas that have not been explored before.

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As part of the testing, the flow equations are calibrated with flow measurements obtained through streamgauging. Streamgauging measurements include the:

- Flow rate
- Water levels upstream and downstream of the structure
- Operating conditions of the structure such as gate openings in the case of spillways, or pump RPM in the case of pump stations

Examples of current hydraulic research conducted as part of engineering support services include flow computations at complex weir/culvert combinations, hydraulics of coastal spillways, and transitional flows, and gated spillways. The results of the FLOW program are used for:

- Water budget analyses
- Water quality analyses
- Flood plain studies
- Flood frequency analyses
- Hydrologic modeling
- Assessment of ecological restoration efforts
- Design of new water control structures

Environmental Science, Environmental or Agricultural Engineering, QA/QC Data Validation, Hydrogeology

Experience and knowledge in any of these disciplines can be used to support District engineering staff by:

- conducting applied engineering and scientific data evaluation and research by acquiring, compiling, normalizing, formatting and processing non-routine engineering and water quality data;
- conducts data and literature searches; and prepares a wide variety of reports, maps, charts, graphs, electronic files, and computer printouts.
- uses applied engineering knowledge for QA/QC, analysis, modeling and reporting of environmental data in support of District's regulatory, planning and ecosystem restoration programs, and numerous external hydrologic and meteorologic data and technical support needs.
- analyzing hydrologic/hydraulic systems through application of modeling tools.
- performing hydrologic mass balance analyses and temporal and spatial statistical analyses of hydrologic and meteorologic data.
- evaluating environmental parameter measurements and identifies sources of error in the data. Applies advanced statistical techniques and/or advanced missing data estimation methods to estimate gaps in the database.
- managing contracts for water resources items.
- summarizing and documenting work through technical publications, reports, fact sheets and presentations.

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- performing hydrologic data QA/QC in order to develop a preferred data set out of field observations of hydrologic and meteorologic data (flow, precipitation, evaporation, stage, wind speed, radiation, temperature and humidity).

Environmental Science, Environmental Engineering, Biogeochemistry, Chemistry, Toxicology

Experience and knowledge in any of these disciplines can be used to support District scientific staff by:

- providing analysis of environmental data and report preparation in support of the South Florida Water Management District's ecosystem restoration projects and legally-mandated/permit-required monitoring efforts.
- providing technical consultation to District customers on environmental monitoring and data evaluation issues
- conducting baseline data characterization studies and network optimizations for CERP and other District initiatives
- participating on several Comprehensive Everglades Restoration Plan (CERP) and Critical Project Delivery teams to help plan, design and properly budget for project-level monitoring
- conducting applied engineering and scientific data evaluation and research by acquiring, compiling, normalizing, formatting and processing non-routine engineering and water quality data;
- conducting data and literature searches; and prepares a wide variety of reports, maps, charts, graphs, electronic files, and computer printouts.
- designing, carrying out, quality assuring and documenting monitoring, research, modeling and assessment studies of the distribution, sources, transport, fate, exposure, effects and risks of toxic substances to meet the requirements of Federal and State law and permits in support of the District's mission of water resources restoration and protection in South Florida.
- ensuring the quality of environmental data, models, assessments and reports generated as part of the assessment studies.
- collecting and analyzing water quality, hydrologic and biological samples and making scientific observations from the field, and collecting relevant data from previous programs and/or contractual sources
- assisting in monitoring program planning, budgeting and management by identifying environmental issues, developing scopes of monitoring efforts, setting goals and objectives, and selecting scientific parameters and sampling techniques to provide definitive data.
- coordinating with District scientists, outside consultants, government agencies and environmental groups to achieve program and project objectives.
- routinely retrieving and reviewing water quality, hydrologic, biological and other environmental data associated with various monitoring projects throughout south Florida.
- synthesizing and interpreting these data into understandable information and preparing associated reports.

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Environmental Science, Biogeochemistry, Chemistry, Toxicology

Experience and knowledge in any of these disciplines can be used to support District scientific staff by:

- collecting manual and electronic sediment/water quality and hydrologic data using pumps, bailers, sample bottles, multiparameter water quality instruments, data loggers, flow meters, laptop computers, autosamplers, atmospheric wet/dry precipitation collectors and secchi disks.
- providing ultra-clean sampling for ultra-trace total mercury , methylmercury and other toxic substances in surface water, pore water, soil cores, vegetation and fish.

Technical Writing – see Appendix B, Sample #3

GIS/Remote Sensing – see Appendix B, Sample #8

5.0 SUPPLEMENTAL PROPOSAL INSTRUCTIONS AND MINIMUM REQUIREMENTS

5.1 Each respondent shall complete the “Qualifications Checklist” included as an attachment to this solicitation to specify one or more combinations of technical disciplines which it is proposing for consideration by the District. The position categories covered under this project and a description of requirements for each position are listed in greater detail under Appendix “A”: *Job Summaries, Employment Standards, Knowledge, Skills and Abilities, Duties and Responsibilities, Performance Management Factors, Physical Dimensions*. Each position listed is denoted in specific detail (position titles, level of expertise required, roles and responsibilities, qualification and educational requirements). Respondents must submit a minimum of one (1) and no more than five (5) resumes and qualifications for each discipline checked on the “Qualifications Checklist”.

5.2 Also included as part of this RFP is Appendix “B” which contains multiple **sample** Work Order statements of work. Some of the samples cover multiple technical disciplines. Respondents must review Appendix “B” and choose those that correspond to the technical disciplines checked on the “Qualifications Checklist”. Respondents must submit two (2) work plans, not-to-exceed ten (10) pages per plan, for each technical discipline as part of the technical proposal to illustrate the approach, capabilities and methodology that would be used to accomplish each work effort. Such work plans must either address the Sample Work Order Statements of Work or address a similar Statement of Work based on a comparable project the respondent has actually performed for another client. If one or more of the attached samples is used as the basis for work plan submission, please label accordingly. If a similar Statement of Work is being used as the basis for work plan submission to demonstrate respondent capabilities, please provide a copy of the actual Statement of Work in addition to the work plan itself. The number of

ATTACHMENT 3

technical disciplines each respondent has included on the “Qualifications Checklist” will determine the total number of work plans to be included with each proposal.

At a minimum each Contractor must satisfy the following requirements and include this information in each work plan:

- Methodology and project approach – how the tasks will be broken down and how tasks will be accomplished. The work plan should provide sufficient detail to demonstrate how the Contractor will proceed, if selected for contract award.
- Submit one or more candidate resumes, as required by the specific Work Order statement of work provisions. Resumes submitted must be sufficiently detailed to demonstrate the skills and/or expertise requested under Work Order specifications and required by the individual Work Order. Evidence of certifications, licensing or other similar awards required by the work orders must be provided with the response.
- Provide a list of appropriate equipment that would be supplied to complete the project.

Important Note: The Appendix “B” statements of work are merely samples to be used for the purpose of demonstrating contractor qualifications and capabilities during the evaluation process through the review of work plans submitted. As samples, the Appendix “B” statements of work are not necessarily indicative of the actual content of work orders that may be issued following award of any ensuing contracts.

Please refer to Part 2 of the RFP for other proposal preparation instructions and minimum requirements. Note that three (3) current and three (3) former client references are required under Part 2.4 D. 3 and D. 4 must be accompanied by short summary project descriptions only as specified.

ATTACHMENT 4

SAMPLE NO. 10

**South Florida Water Management District
Environmental Monitoring and Assessment Department
Hydrology and Hydraulics Division
DBHYDRO Quality Assurance
Statement of Work - Draft**

OVERVIEW:

DBHYDRO is the South Florida Water Management District's hydrologic, hydrogeologic, meteorologic and water quality data retrieval system. The database is the source of historical and current data for the 16-county region governed by the District and has become an important reference for hydrologic, hydrogeologic, meteorologic and water quality investigations in South Florida. The District produces data through a cooperative program with the U.S. Geological Survey, Everglades National Park, the Corps of Engineers, Lake Worth Drainage District, and the U.S. Department of Agriculture.

In addition to storing hydrologic, hydrogeologic, meteorologic and water quality data, DBHYDRO stores information about sites, structures, and stations where data are collected. There are approximately 30,000 station years of data, collected from over 600 stations in and around the District, that are accessible to our internal and external users. Accurate descriptions are available for most gauging sites, providing the user with information on basin, latitude, longitude, state plane coordinates, quad sheet location, county, section, township, range and many other useful data.

BACKGROUND

The Hydrology and Hydraulics Division provide a large source of data to DBHYDRO by documenting environmental activity within the District. This responsibility has existed since the beginning of the District's operational responsibility. Accurate and complete hydrologic, hydrogeologic and meteorological data are needed for planning and research for detailed hydrologic models; as a basis for regulation schedules on lakes and water storage areas; to determine effects on project areas; determine flood profiles and discharges; and to provide permanent historical records of water control structure operations in the event of legal claims against the District.

In an effort to accomplish the mission of producing the highest quality environmental data in a cost-effective manner, the Hydrology and Hydraulics Division continually seek to improve technology and methodologies in data collection, processing, analysis and storage. The Division's overall responsibility is to produce the most scientifically sound data that our tools, knowledge and experience will allow us to do.

A major ongoing task of the Division is to identify potential areas of processing improvements with the goal of refining, streamlining, automating, or eliminating redundant or non-value adding procedures. DBHYDRO was targeted for investigation for many reasons. The primary factor is that internal and external users expect to retrieve reliable data each time the database is accessed. Many areas of quality concerns have already been identified and corrected such as, incomplete information, erroneous data, gaps in the data, partial daily values, and missing data. However, many areas are still unresolved warranting a thorough investigation of the database.

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SAMPLE NO. 10

Technological advances in the software, engineer's review, and the construction of new sites providing comparison data, are a few of the ongoing projects that contribute to the increased quality of information on DBHYDRO. These efforts also provide a variety of tools that facilitate the re-evaluation of data that were processed and stored using older technology.

Previous methods for analyzing and validating data utilized outdated technology. The process was time consuming, prone to errors and severely impacted productivity. For example, if edits were required after a graphic chart was digitized and loaded, an input plot had to be made. After the anomalies were corrected, another input plot had to be generated and reviewed. The turn-around time for the entire procedure was approximately three to four days.

Recent technological advances in the software used to analyze data have drastically reduced the time it takes to process data, while simultaneously increasing the quality of the final product and overall productivity. The development of the Graphical Verification Analysis (GVA) program, a time-series verification software, also plays an important part in analyzing, validating, and storing data. GVA can be accessed from a Workstation or from a PC using Xoftware. Users are able to view the data, perform interactive edits and store the data using one application. The powerful viewing and editing features available in GVA, coupled with the availability of new sources of comparison data, help to promote the investigation of the database using more advanced technology.

Another venture that supports the DBHYDRO Quality Assurance project is called The Structure Information Verification project (STRIVE). STRIVE is sponsored by the Engineering and Hydraulics Support Section of the Division and was established to verify input data used to compute flow at District water-control structures. One of the goals of the project is updating the flow information on DBHYDRO. Preliminary results of the project have revealed site problems that lead to inaccurate flow computations. Other inconsistencies between input data and field data measured at the structures have been found. Once corrected, the revised information will be produced on DBHYDRO.

Achieving and maintaining high quality data has always been the priority of the Division. For that reason, Engineering Associates routinely perform a series of quality assurance checks, as part of standard data processing procedures. One aspect of the quality check involves examining DBHYDRO extractions for obvious errors upon data update. The procedures include checking the data for the following:

- Flow data values are generated when there should be no flow.
- No flow values are generated when there should be flow.
- Values exceed DBHYDRO Min/Max limits.
- Partial data values are generated for a full day of activity.
- Missing data are reported when there should be actual values.

Additionally, associates are required to:

- Maintain DBHYDRO extractions in a folder, after review.
- Report all questionable data processing problems, through the appropriate resource, and,
- Periodically update plot groups with comparison stations, as they become available.

Quality checks provide immediate results by assuring reliable data reaches DBHYDRO. It is recommended that the above mentioned quality assurance checks, by the Engineering Associates, be re-emphasized to ensure the continued quality of data on the database, as well as, the successful termination of quality assurance project. Otherwise, there will be a continuous cycle of suspect data on the database.

ATTACHMENT 4

SAMPLE NO. 10

OBJECTIVES AND/OR GENERAL REQUIREMENTS:

The DBHYDRO Quality Assurance project will be designed to provide a systematic review of the hydrologic, hydrogeologic and meteorological data residing on DBHYDRO. Data will be reviewed by exception using SQL scripts, based on the Division's business rules for data processing and analysis. Data failing to meet specific criteria will be identified, prioritized and reviewed. Details of the work breakdown structure will be provided in Microsoft Project.

The objective of the project will be validating data that are not being analyzed by engineers in the Hydrology and Hydraulics Division or QA/QC Section.

QUALIFICATIONS

The Hydrology and Hydraulics Division (H&H) requires additional resources to quality assure historical time-series data residing on the DBHYDRO database. The fulfillment of the scope of work requires a composite skill set including advanced technical, computing and research skills. Programming skills would be helpful. Such an individual will analyze and resolve anomalous hydrologic, hydrogeologic and meteorologic data patterns using state-of-the-art computer hardware, software, standard, and non-routine computer applications. Data will be compared to known data streams where there is a high correlation and checked for consistency and continuity. For instance, stage data are checked to ensure consistency with control data such as pumping activity and gate openings. Adjustments will be made as necessary. Knowledge of hydrology or hydrogeology, engineering mathematics and physics will be required. Additional information regarding the District's water control sites, as well as, the data recording types will be provided. Some programming skills in UNIX, PL/SQL, SQL, and Oracle Developer 2000 Forms would be helpful in determining the criteria for data review.

A list of the required skills and knowledge includes but is not limited to data analysis and review;; knowledge of UNIX, PL/SQL, SQL, and Oracle Developer 2000 Forms; and the ability to work independently. In addition, five to ten years of qualifying experience in data inspection and analysis will be required. Evidence of the ability to meet the above mentioned expectations must be included in response to this statement of work. Training on standardized computer applications including Graphical Verification Analysis (GVA) software will be provided.

SCOPE OF WORK:

The intent of this document is to define the requirements for the DBHYDRO QA Project and to provide the standards required before the implementation of the work on reviewing data on DBHYDRO. It is estimated that the completion of this project will take approximately 2 years with some percentage of that time spent on gathering information, knowledge of procedures and knowledge of concepts.

It is imperative that there be clear communication between the technical staff who are responsible for analyzing and storing data, and the contract staff who will be re-examining the data stored on DBHYDRO thus ensuring that the enormity and importance of data requirements are clearly understood.

The development of the DBHYDRO QA Project has been divided into five (5) functions. These functions are listed in the following pages as Tasks A through E.

ATTACHMENT 4

SAMPLE NO. 10

TASK A: COMPILE AND PRIORITIZE DATA FOR REVIEW

This task involves compiling and prioritizing a comprehensive list of all the sites that will be analyzed and reviewed on DBHYDRO. Sites for review will be limited to ones that are not being analyzed by engineers in the Hydrology and Hydraulics Division or QA/QC sections. Of those sites, the ones required for standard data requests will take priority.

Currently, The Engineering and Hydraulics Support Section of the Division is responsible for flow monitoring in the storm-water Treatment Areas (STAs). Engineers in the Quality Assurance / Quality Control Section have been reviewing data for legally mandated sites only. Legally mandated sites represent about 25% of the total sites collected and processed within the unit. Through a systematic process, the QA/QC engineers analyze and examine all parameters for given sites. If discrepancies are found, the data are corrected to a preferred (PREF) Dbkey. There are approximately seven hundred seventy seven (777) sites that are not assigned preferred dbkeys.

In an ideal situation, all sites received are reviewed using the criteria mentioned in the objectives and/or general requirements of this document. This is not the situation. Due to the increasing volume of data to be processed, more scrutiny is given to data required for standard data requests. Associates check the extracts for errors and completeness and make corrections accordingly. The Specialist Engineering Associate responsible for managing the data requests performs a cursory review of the extracts before placing the Division's stamp of approval on the data. Data anomalies that may have been overlooked by the associate are usually detected and fixed at this level. Project managers using the data provide final review and analysis during application of the model or project. Occasionally, clarification and/or explanations are required. Based on the number of quality assurance checks performed at the front end, minimal to no data adjustment should be expected on these data. Therefore, by reviewing these data first, the expected completion time of the project should be minimized.

A large portion of the data processed in the division is required for standard data requests. Most of these requests are long-term requiring data on or before a specific deadline. Special ad hoc requests are received intermittently depending on environmental conditions and usually require the same priority given to standard data requests. However, there is more flexibility in determining the expected completion time for the ad-hoc requests based on resource (staff) availability.

The next step in the process will be to review existing reports to determine the sites required for standard data requests. The contractor will meet with the Specialist Engineering Associate responsible for managing data requests, Section Manager, and/or Supervisors for additional information. Once the list is ascertained, the contractor will update the 'Sites Report Form' in DCVP, using the information provided. This will facilitate programmatic data extraction.

The contractor will determine the full (continuous) period of record for each site, station parameter, and data type including graphic, solid state, telemetry, daily water reading, etc. The data will cover the period of time from site instrumentation to current. Currently, the District maintains several different data collection devices. Some of the older types that will be commonly encountered during the execution of this task includes, graphic / digital, Solid State / CR10, and Telemetry. Specific processing applications are used for each data recording type because different measures are required to validate each one.

Graphic Data Processing includes a group of procedures designed to convert data from one form (continuous) to another (discrete). The term 'graphic' refers to the device used to record water levels. The device includes a pen that creates a continuous set of values over a period of time. These values are represented in the form of a pen trace across a chart with x and y dimensions that reflect water elevation and time values. The data are represented in the form of a time-series graph. The recorder itself has

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become obsolete and there are no recorders of this type being installed in the field. Efforts are currently underway to remove all existing graphic recorders from the field. A specific software application, Stage/Gate 2 (SG2), are among the suite of applications in the DCVP system is used to process graphic data after certain administrative procedures are performed.

Electronic Data Processing, as the name implies includes a group of procedures designed to process data that is recorded by various electronic devices. This recording device was introduced around 1992. There are several different types of electronic data recorders currently in use. This condition is likely to be in a continual state of change as technologies advance and change. The sensor detects the state of the hydrologic or meteorologic attribute it is measuring and sends that information back to a central processing unit that records the value in an on-board storage module. The data is delivered for processing in an electronic file format. Certain administrative procedures are performed and the data is then uploaded to the Stage/Gate 3 (SG3) application in DCVP and processed.

In 1987, Telemetry Data Processing was introduced as a somewhat advanced form of electronic data processing. Electronic sensors are used to detect the state of a hydrologic or meteorologic attribute as with routine electronic recorders. However, this data is used to support decisions about District water management operations. Therefore, the data is needed on a real-time basis. It is transmitted by radio frequency (telemetry) on a regular, and sometimes continuous, cycle to the Operations Control Room. A short-term database is used to store the data. It is downloaded to the Stage/Gate 4 (SG4) application in DCVP system on a nightly basis and is processed.

The contractor will use all available resources, including DCVP, to complete this task as efficiently as possible, since this represents the framework for data review. The contractor will create a SQL program to identify stations not assigned a 'PREF' dbkey and are required for standard data requests. The program will generate the complete period of record for each station and data type. Another report should provide information on stations not required for standard data requests. A thorough understanding of the various data collection devices and data types will be required for this task.

TASK B: DEVELOP AN OVERALL DATA REVIEW STRUCTURE

This component will be critical to the success of the project and will essentially guide the sequence of the review of the database. The contractor will develop an overall data review structure that will outline and chart the entire review process for the project. The information should be presented chronologically outlining how the review will take place.

TASK C: CREATE AN ELECTRONIC REPORT FORM

This task involves creating an electronic form for recording and reporting anomalies found on DBHYDRO. Errors are identified on DBHYDRO in a variety of ways. One way is during routine data processing. An associate sometimes detects an anomaly in comparison data that is included in a plot being reviewed. It is incumbent on the individual who finds the error to verbally report it, because there is no established procedure to report and correct these anomalies. Occasionally, the individual finding the anomaly will make the necessary corrections depending on the simplicity of the problem, available information, and time. If the problem is complex and requires research, the information is forwarded to the owner of the site to make the correction. There is no mechanism to track whether or not the corrections are made. The creation of an electronic report form will provide a mechanism to report and track questionable areas on DBHYDRO.

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The contractor will create an electronic report form similar to the DCVP Annotations Form. The form will be made available as an option on the VAS screen in GVA, and in the DCVP forms. The form will include the following fields:

Report ID - a unique identification number.

Station ID - the name of the station being reported.

List Option Button - the field will allow the user to choose the station being reported from a list. Station names on the list will be limited to only those within the plot group that is being reviewed.

Start Date / Time - the start date and time of the questionable period-of-record.

End Date / Time - the end date and time of the questionable period-of-record.

User Os ID - the name of the individual reporting the anomaly.

Problem Description - a brief description of the problem.

Screen Print Attached - this option will allow the user to attach a screen print of the anomaly to the report being filed.

Resolved By - the name of individual making corrections.

Date Resolved - the date on which the correction is finalized.

Prior to writing the program, the contractor will meet with supervisors and programming staff to verify the requirements of the form. The contractor will test the program for completeness and notify the staff accordingly.

TASK D: ANALYZE AND CORRECT THE DATA

This task involves implementing the project. The contractor will interact with supervisors, engineering associates and engineers for information and/or clarification. Data review will commence based on the criteria outlined above.

The contractor will be provided a tentative schedule in which the review activity should take place to assure that the project deadline is met. The contractor will review and analyze trace patterns for accuracy and continuity based on established District standards for data review. The standards include but are not limited to (a) validating flow data values when there should be no flow; (b) flow values are not reported when there is evidence that flow occurred; (c) DBHYDRO Min/Max limits are exceeded; (d) partial data values are generated for a full day of activity; (e) data are reported as missing 'M', when there should be actual values.

The contractor will be required to retrieve data from storage, as necessary. Plot groups will be created using suitable data for comparison. Data will be reviewed in GVA and estimations made, as required. The contractor will validate DBHYDRO data tags including, 'M', 'E', '<', '>', 'S', and '!' for accuracy. Corrections will be clearly annotated describing the problem, date and time of the problem, and resolution. Data reloads will be performed after consulting with the engineering group. The contractor will track all periods-of record reviewed using the Electronic Report Form.

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TASK E: DEVELOP A MAINTENANCE PLAN

Due to the enormity of the project, a maintenance plan should be developed and documented to assure periodic review of the database. Preventative maintenance is the key. DBHYDRO data review should be done on a periodic basis to ensure data quality and remove any potential data anomalies. The contractor will develop and document a maintenance plan to ensure data quality, as well as, remove any potential data anomalies. The plan should outline when DBHYDRO data reviews are required and how the review is to be accomplished.

ATTACHMENT 5

Sample Statements of Work Discipline	1	2	3	4	5/6	7	8	9	10
	Flow Monitoring Assistance	Water Quality QA/QC	Technical Editor	Water Quality Monitoring	STA Mercury Monitoring	QA Field Sampling Audits	CERP Baseline Data	Water Quality Sampling	DBHydro Quality Assurance
1.1 Civil-Structural	X								
1.2 Civil-Water Resources	X								X
1.3 Civil-Hydrology	X								X
2 Environmental Engineering		X		X	X	X		X	X
3 Agricultural Engineering					X	X		X	X
4 Hydrogeology									X
5 Biogeochemistry		X		X	X	X		X	
6 Chemistry		X		X	X	X		X	
7 Toxicology					X			X	
8 Environmental Science		X		X	X	X		X	X
9 Technical Writing		X	X				X		
10 GIS/Remote Sensing							X		
11 QA/QC & Data Validation		X					X		

ATTACHMENT NO. 6

QUALIFICATIONS CHECKLIST

RFP NUMBER: C-13820

(revised 7/30/02)

In order to facilitate District review and evaluation of each respondent's technical qualifications, this checklist must be included with each proposal. Respondent must check all applicable disciplines being considered for this project.

DISCIPLINE		(Indicate with a ✓)
1	Civil Engineering (may include: Structural Engineering, Water Resource Engineering, and Hydrology)	
2	Environmental Engineering	
3	Agricultural Engineering	
4	Hydrogeology	
5	Biogeochemistry	
6	Chemistry	
7	Toxicology	
8	Environmental Science	
9	Technical Writing	
10	GIS and Remote Sensing	
11	Quality Assurance/Quality Control (Scientific Data Validation)	
Total Number of Disciplines		

ATTACHMENT NO. 7

LOCATION CATEGORY

The location of the project site for this project will be within the 16 county region served by the District. If the respondent specifies a local or Florida-based office, the respondent's Project Manager and other key personnel for the proposed services must be located out of that local office to receive consideration. To determine the point score, the District shall calculate the number of miles from the respondent's project office to the District's West Palm Beach headquarters. A "Mileage Chart" from West Palm Beach headquarters to various cities within Florida is set forth below.

Miles from District Headquarters	Numerical Score
0-100	10
101-200	8
201-300	6
301-400	4
401-500	2
Over 500	0

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Location Category Mileage Chart (from West Palm Beach Headquarters)

City	Miles	City	Miles
Bartow	155	Clewiston	55
Belle Glade	43	Cocoa Beach	122
Boca Raton	26	Coral Gables	69
Boynton Beach	13	Daytona Beach	187
Bradenton	176	Deland	192
Brooksville	219	Delray Beach	18
Clearwater	214	Ft. Lauderdale	38
Ft. Myers	124	Naples/Big Cypress	160
Ft. Pierce	54	Ocala	233
Ft. Walton Beach	547	Okeechobee F.S.	70
Gainesville	269	Orlando	166
Hialeh	66	Panama City	493
Hollywood	50	Pensacola	587
Homestead	100	Plant City	178
Jacksonville	274	Pompano Beach	34
Key West	219	St. Augustine	238
Kissimmee	150	Sanford	176
Lakeland	168	Sarasota	174
Lake City	310	Tallahassee	401
Largo	212	Tampa	192
Leesburg	202	Titusville	142
Melbourne	101	Vero Beach	68
Miami	70	Winterhaven	154